

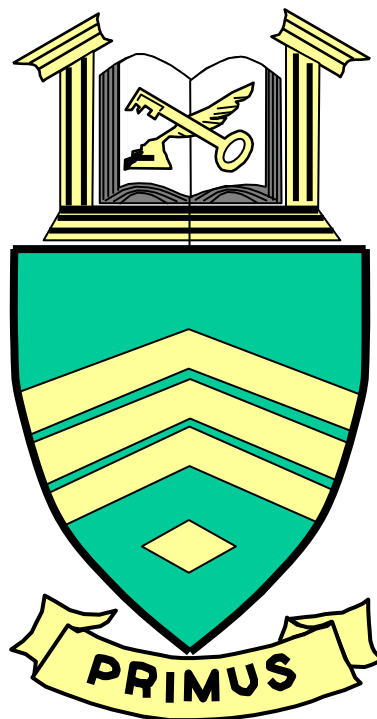
U.S. ARMY SERGEANTS MAJOR ACADEMY (FSC-TATS)

W663 (052002)

JUN 01

PREVENTIVE MEDICINE MEASURES

PRERESIDENT TRAINING SUPPORT PACKAGE



Overview

In addition to the normal occupational hazards that soldiers must face, they often have to live in primitive conditions that subject them to hundreds of diseases and nonbattle injuries (DNBI). Throughout history, armies have had tremendous problems with heat, cold, and disease. Diseases and nonbattle injuries have caused the greatest wartime loss of human resources. The preventive medicine measures (PMM) required by AR 40-5 can effectively counter the DNBI threat, but many of these PMM require actions or resources beyond the capabilities of the individual soldier. If you fail to plan, resource, and enforce the essential PMM, DNBI can dramatically reduce the combat power of your unit. Preventive medicine for your soldiers is just as essential as preventive maintenance for your vehicles. This lesson will provide you with a better understanding of the DNBI threat, your preventive medicine responsibilities, and the PMM planning process. Your actions in this area are essential to maintaining the welfare of your soldiers and your unit's fighting strength.

Inventory of Lesson Materials

Prior to starting this lesson, ensure you received all materials (pages, tapes, disks, etc.) required for this Training Support Package. Go to the “**This [TSP or Appendix] Contains**” section on page two of the TSP and the first page of each Appendix, and verify you have all the pages. If you are missing any material, contact the First Sergeant Course Class Coordinator at the training institution where you will attend phase II FSC-TATS.

Point of Contact

If you have any questions regarding this lesson, contact the First Sergeant Course Class Coordinator at the training institution where you will attend phase II FSC-TATS.

PRERESIDENT TRAINING SUPPORT PACKAGE

**TSP Number/
Title** W663
Preventive Medicine Measures

Effective date JUN 01

**Supersedes
TSPs** W663, Preventive Medicine Measures
DEC 99

TSP User This TSP contains a training requirement that you must complete prior to attending phase II, FSC-TATS. It will take you about two hours to complete this requirement.

Proponent The proponent for this document is the U.S. Army Sergeants Major Academy. POC: FSC-TATS Course Chief, DSN: 978-8854/8848; commercial: (915) 568-8854/8848.

**Comments/
Recommendations** Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to:

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**Foreign
Disclosure
Restrictions** The lesson developer in coordination with the USASMA foreign disclosure authority has reviewed this lesson. This lesson is releasable to foreign military students from all requesting foreign countries without restrictions.

**This TSP
Contains**

Table of Contents		Page
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SECTION I ADMINISTRATIVE DATA

Task Trained This lesson trains the task listed in the following table:

Task number:	081-831-9023
Task title:	Enforce Preventive Medicine Measures Against Disease and Nonbattle Injuries,
Conditions:	You are a company commander or leader of a unit deployed to the field. Given equipment authorized by your table of organization and equipment (TOE) and field sanitation equipment and supplies, AR 40-5, FM 21-10, and FM 21-10-1,
Standards:	Enforce the preventive medicine measures against the seven components of the medical threat. Identify specific responsibilities of key personnel for preventing disease and nonbattle injuries. Identify capabilities of preventive medicine assets in a theater of operations. Identify preventive medicine information and possible sources to use for planning for disease and nonbattle injuries (DNBI) where your unit will deploy. [Perform these actions] IAW AR 40-5, FM 21-10, and FM 21-10-1.
Task Proponent:	U.S. Army Medical Department Center and School.

**Task
Reinforced**

None

**Prerequisite
Lesson**

None

**Clearance and
Access**

There are no clearance or access requirements for this lesson.

**Copyright
Statement**

No copyrighted material reproduced for use in this lesson.

References

The following table lists the references for this lesson:

Number	Title	Date	Para	Additional Information
AR 40-5	Preventive Medicine	Oct 90	Para 14-2, 3a, 3b.	
FM 8-10	Health Service Support in a Theater of Operations	March 91	Chap 10	
FM 21-10	Field Hygiene and Sanitation	Jun 00		
FM 21-10-1	Unit Field Sanitation Team	Oct 89	Para 2-2b, 2c. Appendix D & E	

**Equipment
Required**

None

**Materials
Required**

This preresident training package contains all material necessary to complete this lesson.

**Safety
Requirements**

None

**Risk
Assessment
Level**

Low

**Environmental
Considerations**

None

**Lesson
Approval**

The following individuals have reviewed and approved this lesson for publication and incorporation into the First Sergeant Course--The Army Training System.

Name/Signature	Rank	Title	Date
Ed Robbs	CNTR	Training Developer	
Ivan E. Williamson	SGM	Chief Instructor, FSC	
Gregory L. Knight	SGM	Course Chief, FSC-TATS	

SECTION II INTRODUCTION**Terminal
Learning
Objective**

At the completion of this lesson, you will--

Action:	Identify actions to implement preventive medicine measures for protection against disease and nonbattle injuries,
Conditions:	as a first sergeant in a classroom environment, given extracts from AR 40-5 (SH-1), FM 21-10 (SH-2), and FM 21-10-1 (SH-3),
Standard:	Identified actions to implement preventive medicine measures for protection against disease and nonbattle injuries IAW SH-1 thru SH-3.

Evaluation Before entering phase II FSC-TATS, you will receive the end of Phase I Performance Examination that will include questions based on material in this lesson. On that examination, you must answer at least 70 percent of the questions correctly to achieve a GO.

Instructional Lead-in Preventive medicine for your soldiers is essential to their welfare and your unit's fighting strength. This instruction builds on the preventive medicine tasks taught at PLDC and ANCOC. In this lesson we will look at the regulatory guidance for field preventive medicine in AR 40-5 and review some of the basic leader preventive medicine measures in FM 21-10, Field Hygiene and Sanitation. As a first sergeant, you must ensure that all your soldiers know the individual preventive medicine measures in Chapter 1 of FM 21-10, but we will not review that material in this lesson. FM 21-10-1 provides a training program for your field sanitation team and you should use this FM in your unit.

SECTION III PRESENTATION

ELO 1

Action:	Identify unit level preventive medicine measures,
Conditions:	as a first sergeant in a classroom environment, given SH-1 thru SH-3,
Standard:	Identified unit level preventive medicine measures IAW SH-1 thru SH-3.

ELO 2

Action:	Identify leader preventive medicine measures necessary to counter environmental threats,
Conditions:	as a first sergeant in a classroom environment, given SH-1 thru SH-3,
Standard:	Identified leader preventive medicine measures necessary to counter environmental threats IAW SH-1 thru SH-3.

Learning Step/Activity (LS/A) 1, ELOs 1 and 2	<p>To complete the learning activity, you must--</p> <ul style="list-style-type: none"> • Read ELOs 1 and 2 above. • Study Student Handouts 1 through 3 (Appendix C). • Complete lesson exercise 1 (Appendix B). • Compare your responses with the suggested solution found in the solution/discussion to LE-1 (Appendix B). • Review the reference on any item with which your response does not agree.
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SECTION IV SUMMARY

Review/Summarize Lesson	<p>You and your soldiers should be so familiar with preventive medicine measures that they are second nature to you. However, many units do not often spend continuous time in a field environment. Even units with extensive field time may train in an area where there are no latrines and facilities for washing. You must plan ahead for situations where these amenities are not available. Use FM 21-10 as your guide.</p> <p>The impact of losses due to DNBI is one prominent and continuous feature of military operations. Immense problems with heat, cold, and communicable diseases continue to plague modern armies. In all U.S. conflicts, the ratio of DNBI casualties to casualties due to enemy action is three to one. Maintaining your soldiers' good health is essential to success in battle.</p>
Check on Learning	<p>The lesson exercise you completed in Appendix B will serve as the check on learning for this lesson.</p>
Transition to Next Lesson	<p>None</p>

SECTION V STUDENT EVALUATION

**Testing
Requirements**

Before entering phase II FSC-TATS, you will receive the end of Phase I Performance Examination that will include questions based on material in this lesson. On that examination, you must answer at least 70 percent of the questions correctly to achieve a GO.

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SECTION VI QUESTIONNAIRE

Directions Complete the following actions:

- Enter your name, your rank, and the date you complete this questionnaire.

Name:	Rank:	Date:
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- Answer items 1 through 6 below.
- Fold the questionnaire, so the address for USASMA is visible.
- Print your return address, add postage, and mail.

Note: Your response to this questionnaire will assist the Academy in refining and improving this course. When completing the questionnaire, answer each question frankly. Your assistance helps build and maintain the best curriculum possible.

Item 1	Do you feel you have met the learning objectives of this lesson?
Item 2	Was the material covered in this lesson new to you?
Item 3	Which parts of this lesson were most helpful to you in learning the objectives?
Item 4	How could we improve the format of this lesson?
Item 5	How could we improve the content of this lesson?
Item 6	Do you have additional questions or comments? If you do, please list them here. You may add additional pages if necessary

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Appendix B

Index of Lesson Exercises and Solutions

**This Appendix
Contains**

This Appendix contains the items listed in this table--

Title/Synopsis	Page(s)
LE-1, Lesson Exercise 1, Preventive Medicine Measures	LE-1-1 thru LE-1-4
SLE-1, Solution/Discussion to LE-1	SLE-1-1 thru SLE-1-5

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LESSON EXERCISE 1

PREVENTIVE MEDICINE MEASURES

Reference Materials/ Solutions	Do not use any reference material or refer to the solution until after you complete the items in this lesson exercise (LE). Write your answers in the space provided.
General	This is a self-graded exercise. It should take you approximately 45 minutes to complete the exercise. It should take you approximately 15 minutes to self-grade the LE using the Solution to Lesson Exercise (SLE)

- Item 1. According to AR 40-5 on field preventive medicine, soldiers, as a minimum, will protect themselves against what six things?

- Item 2. According to AR 40-5, how should soldiers protect themselves against enteric disease?

- Item 3. If your company is deploying to the field and has problems in company-level preventive medicine measures that exceed your unit's capabilities, what does AR 40-5 say to do?

- Item 4. If your unit has organic or attached medical personnel, how should you utilize them in the area of company-level preventive medicine measures?

Item 5: According to AR 40-5, field sanitation teams provide the small-unit commander with what?

Item 6. The field sanitation teams of all deployable units will maintain, transport, and use certain materials in support of both training exercises and contingency mission. AR 40-5 lists field sanitation team materials, descriptions, unit of issue, and allowances. What is the recommended stocking level for chlorination kits for water purification?

Item 7: According to FM 21-10, what are the eight elements of the medical threat?

Item 8: According to FM 21-10, what are the three principles of preventive medicine measures?

Item 9: When you plan for heat, who should you use to train individuals and their leaders in preventive medicine measures (PMM)?

Item 10: When you plan for heat, you must consider how much potable water you may need. Each soldier may need up to how many gallons per day just for drinking?

Item 11: You may receive heat condition information in two different formats. What are they?

Item 12: Heat category 3 equates to what WBGT index F?

Item 13: During high heat conditions, you must ensure the leaders in your unit enforce water intake. What four things does FM 21-10 say leaders should do to enforce water intake?

Item 14. When your unit is under heat conditions, you must recognize conditions that increase the risk of heat casualties. If soldiers are in MOPP, how many degrees do you add to the wet bulb globe index measurement?

- Item 15. When your unit is under heat conditions, you may need to direct soldiers to modify the wear of the uniform. However, you should NOT direct or authorize soldiers to unblouse their pants when your unit is under what medical threat?

- Item 16. If your unit is in a field environment where the windchill is -20°F and below, what preventive medicine measures does FM 21-10 recommend?

- Item 17. What conditions place soldiers at higher risk for cold injuries?

- Item 18. What does FM 21-10 suggest is an adequate supply of iodine water purification tablets?

- Item 19. When you select locations for field latrines, what should you consider?

- Item 20. In order to enforce preventive medicine measures, you need to know the effects of sleep loss. Which soldiers need the most sleep?

SOLUTION FOR LESSON EXERCISE 1

PREVENTIVE MEDICINE MEASURES

Item 1. According to AR 40-5 on field preventive medicine, soldiers, as a minimum, will protect themselves against what six things?

Answer:

- Heat incapacitation
- Cold injury
- Mosquito, fly, tick, and other anthropod-borne diseases
- Enteric disease
- Skin disease
- Other hazards

Reference: SH-1-2, AR 40-5, para 14.2.

Item 2. According to AR 40-5, how should soldiers protect themselves against enteric disease?

Answer: By using iodine tablets whenever water quality is uncertain, by avoiding unapproved civilian food vendors, and by properly disposing of bodily wastes.

Reference: SH-1-2, AR 40-5, para 14.2d.

Item 3. If your company is deploying to the field and has problems in company-level preventive medicine measures that exceed your unit's capabilities, what does AR 40-5 say to do?

Answer: Request assistance.

Reference: SH-1-2, AR 40-5, para 14.3a(10).

Item 4. If your unit has organic or attached medical personnel, how should you utilize them in the area of company-level preventive medicine measures?

Answer: Appoint them to serve as the field sanitation team for the unit.

Reference: SH-1-2, AR 40-5, para 14.3b(1).

Item 5: According to AR 40-5, field sanitation teams provide the small-unit commander with what?

Answer: Organic expertise to monitor the status of unit PMM and limited capability to control insect and rodent vectors in the unit area.

Reference: SH-1-2, AR 40-5, para 14.3b(1)(a) and (b).

Item 6: The field sanitation teams of all deployable units will maintain, transport, and use certain materials in support of both training exercises and contingency mission. AR 40-5 lists field sanitation team materials, descriptions, unit of issue, and allowances. What is the recommended allowance level for chlorination kits for water purification?

Answer: 10

Reference: SH-1-3, AR 40-5, table 14-1.

Item 7: According to FM 21-10, what are the eight elements of the medical threat?

Answer: Heat, cold, arthropods and other animals, food/waterborne diseases, the unfit service member, noise, toxic industrial chemicals/materials, and nonbattle injury.

Reference: SH-2-3, FM 21-10, chapter 1, section II.

Item 8: According to FM 21-10, what are the three principles of preventive medicine measures?

Answer:

- Soldiers perform individual techniques of PMM.
- Chain of command plans for and enforces PMM.
- Field sanitation teams train service members in PMM and advise the commander and unit leaders on implementation of unit level PMM.

Reference: SH-2-3, chapter 1, section II, "Principles of Preventive Medicine Measures."

Item 9: When you plan for heat, who should you use to train individuals and their leaders in preventive medicine measures (PMM)?

Answer: Your field sanitation team.

Reference: SH-2-4, FM 21-10, chapter 3, section I, under "Plan for the Heat."

Item 10: When you plan for heat, you must consider how much potable water you may need. Each soldier may need up to how many gallons per day just for drinking?

Answer: Up to three gallons of water per day.

Reference: SH-2-4, FM 21-10, chapter 3, section I, under "Plan for the Heat."

Item 11: You may receive heat condition information in two different formats. What are they?

Answer:

- Category: 1, 2, 3, 4, and 5.
- Wet bulb globe temperature index (WBGT).

Reference: SH-2-5, FM 21-10, chapter 3, section I, under "Obtain and Use Heat Condition."

Item 12: Heat category 3 equates to what WBGT index F?

Answer: 85 - 87.9 F.

Reference: SH-2-5, FM 21-10, chapter 3, section I, under "Obtain and Use Heat Condition." Table 3-1.

Item 13: During high heat conditions, you must ensure the leaders in your unit enforce water intake. What four things does FM 21-10 say leaders should do to enforce water intake?

Answer:

- Observe soldiers drinking required amounts. Encourage frequent drinking of water in small amounts.
- Provide cool water, if desired you can add citrus fruit flavoring after disinfection to enhance consumption.
- Ensuring troops drink water before starting any hard work or mission (in the morning, with/after meals).
- Frequently, check service members' canteens for water, not beverages.

Reference: SH-2-6 and 7, FM 21-10, chapter 3, section I, under "Enforce Individual Preventive Medicine Measures."

Item 14. When your unit is under heat conditions, you must recognize conditions that increase the risk of heat casualties. If soldiers are in MOPP, how many degrees do you add to the wet bulb globe index measurement?

Answer: 10°

Reference: SH-2-5, FM 21-10, chapter 3, section I, under "Obtain and Use Heat Condition Information, Table 3-1"

Item 15. When your unit is under heat conditions, you may need to direct soldiers to modify the wear of the uniform. However, you should NOT direct or authorize soldiers to unblouse their pants when your unit is under what medical threat?

Answer: If the medical threat from biting arthropods is high.

Reference: SH-2-7, FM 21-10, chapter 3, section I, under **NOTE** in "Modify Wear of the Uniform."

Item 16. If your unit is in a field environment where the windchill is -20°F and below, what preventive medicine measures does FM 21-10 recommend?

Answer: Modify or curtail all but mission essential field operations.

Reference: SH-2-10, FM 21-10, chapter 3, section II, under "Determine and Use Windchill Factor, Table 3-4."

Item 17. What conditions place soldiers at higher risk for cold injuries?

Answer:

- Previous trench foot or frostbite.
- Fatigue.
- Use of alcohol.
- Significant injuries.
- Poor nutrition.
- Use of medications which cause drowsiness.
- Little previous experience in cold weather.
- Immobilized or subject to greatly reduced activity.
- Service members wearing wet clothing.
- Sleep deprivation.

Reference: SH-2-10 and 11, FM 21-10, chapter 3, section II, under "Identify Special Considerations."

Item 18. What does FM 21-10 suggest is an adequate supply of iodine water purification tablets?

Answer: One bottle for each individual.

Reference: SH-2-15, FM 21-10, chapter 3, section V, under "Plan for Safe Water."

Item 19. When you select locations for field latrines, what should you consider?

Answer:

- As far from food operations as possible (100 meters or more). Downwind and down slope if possible.
- Down slope from wells, springs, streams and other water sources (30 meters or more).

Reference: SH-2-16, FM 21-10, chapter 3, section V, under "Plan for the Construction and Maintenance of Field Sanitation Devices."

Item 20. In order to enforce preventive medicine measures, you need to know the effects of sleep loss. Which soldiers need the most sleep?

Answer: Those soldiers with the most complex mental or decision-making jobs need the most sleep—this means you and your most critical leaders and operators.

Reference: SH-2-18, FM 21-10, chapter 3, section V, under "Enforce Preventive Medicine Measures for the Effects of Sleep Loss."

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Appendix C

Index of Student Handouts

**This Appendix
Contains**

This Appendix contains the items listed in this table--

Title/Synopsis	Page(s)
SH-1, Extracts from AR 40-5, Preventive Medicine, 15 Oct 90	SH-1-1 thru SH-1-5
SH-2, Extracts from FM 21-10, Field Hygiene and Sanitation, Jun 00	SH-2-1 thru SH-2-22
SH-3, Extracts from FM 21-10-1, Unit Field Sanitation Team, Oct 89	SH-3-1 thru SH-3-3

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Student Handout 1

**This Student
Handout
Contains**

Chapter 14, paragraph 14-1 through paragraph 14-5 extracted from Army Regulation 40-5, Medical Services Preventive Medicine, 15 October 1990

Laboratory, Cincinnati, Ohio (EMSL-CI). Known value quality control samples for microbiology and chemistry will be furnished by EMSL-CI directly to EPA regions and through the regions to local laboratories. Requests for samples will be made through the appropriate EPA regional office.

(2) USAEHA provides proficiency testing surveys for quality control of water and wastewater analyses. PVNTMED services and OCONUS supporting laboratories wishing to participate in this program should address their requirements to the Commander, USAEHA, ATTN: HSHB-ML-A, Aberdeen Proving Ground, MD 21010-5422.

(3) AR 750-25 establishes a single DA test, measurement, and diagnostic equipment (TMDE) calibration and repair support program to ensure that all TMDE receive calibration on a recurring basis as required. TB 750-25 describes procedures and responsibilities for obtaining, providing, and receiving calibration service.

Chapter 14 Field Preventive Medicine

14-1. General

a. Preventable personnel losses from heat, cold, or disease become important because history has repeatedly shown that nonbattle losses have played a significant role in the outcome of military operations. This chapter establishes field PVNTMED responsibilities.

b. Guidance herein applies to field training exercises, disaster relief operations, as well as contingency force deployment. Included are—

- (1) Individual preventive medicine measures (PMM).
- (2) Company-level PMM.
- (3) Division-level PMM.
- (4) PVNTMED team support.

14-2. Individual support

The soldier will employ all protective measures possible. Each soldier, as a minimum, will protect against—

- a.* Heat incapacitation in hot climates by drinking a sufficient volume of water at frequent intervals.
- b.* Cold injury in cold climates by wearing proper cold-weather clothing and frequently changing socks to keep feet dry, by careful handling of gasoline-type liquids, and by avoiding contact between skin and cold metal.
- c.* Mosquito, fly, tick, and other arthropod-borne diseases by using insect repellents, netting, and insecticide aerosols; by taking approved chemoprophylaxis; and by wearing the uniform properly.
- d.* Enteric disease by using iodine tablets whenever water quality is uncertain, by avoiding unapproved civilian food vendors, and by properly disposing of bodily wastes.
- e.* Skin disease by washing the body as often as practicable.
- f.* Other hazards by using appropriate measures as described in FM 21-10/AFM 161-10.

14-3. Company-level PMM

Companies, troops, batteries, and units of equivalent size are responsible for those PMM that affect units as a whole or are beyond the resources of an individual soldier. FM 21-10/AFM 161-10 will be used as a guide with maximum use of company-level PMM therein. Commanders will ensure that their units conduct PMM.

a. Functions. As a minimum, units deploying to the field will—

- (1) Before deployment, appoint a field sanitation team with responsibilities defined in *b* below.
- (2) Before deployment, incorporate PMM into SOPs.
- (3) Have the capability to use pesticides and vegetation controls.
- (4) Bury and/or burn wastes to prevent the breeding of insects and rodents. Consult the environmental coordinator or PVNTMED personnel to ensure compliance with local environmental regulations and laws during field exercises.

(5) Protect food during storage and preparation to prevent contamination (TB MED 530).

(6) Monitor unit water sources to assure adequate supplies and disinfection.

(7) Arrange for maintenance of immunizations and prophylaxis.

(8) Use other appropriate measures under FM 21-10/AFM 161-10.

(9) Assure command supervision of individual PMM.

(10) Request assistance for problems exceeding unit capabilities.

(11) Deploy to the field with field sanitation equipment listed in table 14-1.

b. Field sanitation teams.

(1) When organic or attached medical personnel are available, they will be appointed and will serve as the field sanitation team for the unit. They will serve as advisers to the commander, train unit personnel in individual PMM, and supervise or conduct basic PVNTMED services. Company and battery-sized units deploying without organic or attached medical personnel will appoint a field sanitation team. These field sanitation teams provide the small-unit commander with—

(*a*) Organic expertise to monitor the status of unit PMM.

(*b*) Limited capability to control insect and rodent vectors in the unit area.

(2) The field sanitation team will conduct training within the unit on individual PMM against disease and injury as these relate to an assessment of the medical threat in the prospective or defined areas of operation.

(*a*) *Composition.* Company aidmen (military occupational specialty 91A) organic or attached to deployed units will be trained and will function as the unit field sanitation team. If medical personnel are not available, two soldiers will be selected and trained, one of whom must be a noncommissioned officer. Neither the organic or attached aidman nor selected soldiers will have less than 6 months remaining with the unit on the date of appointment.

(*b*) *Training.* Members of field sanitation teams (organic or attached medical or nonmedical personnel) will receive training from supporting medical resources before deployment or field exercises to assure that small units have the PVNTMED resources to operate in adverse disease and/or climatic environments. Instruction will address use, maintenance, and care of the field sanitation team equipment as well as communicable disease control, food service sanitation, water supply, waste disposal, and arthropod and rodent control.

(*c*) *Coordination.* In nonoperational areas, pesticide spraying is generally accomplished by facilities engineer personnel. Such services will reduce the field sanitation team workload. Teams should coordinate with engineer personnel. Field sanitation team spraying will be conducted as necessary to supplement engineer coverage and to maintain team familiarization with control techniques. Pesticide recommendations to control specific vectors or pests are found in AFPMB TIM 24. Large populations of insect or rodent pests in the unit area will warrant a request for support by a PVNTMED (LA) team. (See para 14-5d(2) below.)

(*d*) *Equipment.* The recommended stocking of field sanitation team materials is listed in table 14-1. All deployable units will maintain, transport, and use listed items in support of both training exercises and contingency mission.

14-4. Division-level PMM

The next echelon of PVNTMED support is at the division. This level of support is provided by the PVNTMED section in the medical battalion of the infantry(light), airborne, and air assault divisions. In armored and mechanized divisions, this support is provided by PVNTMED elements of the main support battalion. The services provided include identification of PVNTMED problems and training of unit field sanitation teams and back-up company-level PMM which are beyond the capability of unit personnel due to their complexity, scope, or specialized nature.

14-5. PVNTMED team support

Although the main thrust of PVNTMED occurs within small units

in the form of individual and company-level PMM, some problems will require additional expertise and equipment for resolution. Such skills and material are concentrated in PVNTMED teams that can be used to support units operating in areas of highest disease risk.

Table 14–1
Field sanitation team materials

National stock number: 6810–00–255–0471 Description: Calcium Hypochloride, 6 oz Unit/Issue: BT Allowance: 3 Authority: CTA 50–970
National stock number: 6545–00–914–3480 Description: Chest, No. 3, 30x18x10, Alum Unit/Issue: EA Allowance: 1 Authority: CTA 8–100
National stock number: 6850–00–270–6225 Description: Chlorination Kit, Water purification Unit/Issue: KT Allowance: 10 Authority: CTA 50–970
National stock number: 6840–00–810–6396 Description: Disinfectant, food service, 12's Unit/Issue: BX Unit/Issue: 2 Authority: CTA 50–970
National stock number: 3740–00–132–5936 Description: Duster, Manually operated, tubular pump Unit/Issue: EA Allowance: 1 Authority: CTA 50–970
National stock number: 8415–01–012–9294 Description: Glove, Chemical and Oil Protective Unit/Issue: PR Allowance: 1 Authority: CTA 50–900
National stock number: 4240–00–190–6432 Description: Goggles, Industrial, non-vented Unit/Issue: PR Allowance: 1 Authority: CTA 50–970
National stock number: 6840–01–284–3982 Description: Insect Repellent, personnel application, 2 oz Unit/Issue: BT Allowance: 384 Authority: CTA 50–970
National stock number: 6840–01–210–3392 Description: Insecticides, Chlorpyrifos, 42%, 40 ml, 12's Unit/Issue: BX Allowance: 1 Authority: CTA 50–970
National stock number: 6840–01–067–6674 Description: Insecticides, d-Phenothrin, 2%, 12 oz Unit/Issue: CN Allowance: 144 Authority: CTA 50–970
National stock number: 6840–00–242–4217 Description: Insecticides, lindane, 1%, 2 oz Unit/Issue: BT Allowance: 192 Authority: CTA 50–970
National stock number: 3740–00–252–3384 Description: Mousetrap, spring, 12's Unit/Issue: DZ Allowance: 2 Authority: CTA 50–970
National stock number: 3740–00–260–1398 Description: Rattrap, spring, 12's

Table 14–1
Field sanitation team materials—Continued

Unit/Issue: DZ Allowance: 2 Authority: CTA 50–970
National stock number: 3740–01–234–3448 Description: Repair Parts Kit, sprayer Unit/Issue: EA Allowance: 1 Authority: TIM No. 24
National stock number: 6840–00–753–4973 Description: Rodenticides, anticoagulant bait, 5 lb Unit/Issue: CN Allowance: 2 Authority: CTA 50–970
National stock number: 3740–00–641–4719 Description: Sprayer, insecticides, hand, 2 gal Unit/Issue: EA Allowance: 1 Authority: CTA 50–909
National stock number: 3740–00–252–3383 Description: Swatter, fly, 12's Unit/Issue: PG Allowance: 1 Authority: CTA 50–970
National stock number: 6850–00–985–7166 Description: Water purification tablet, iodine, 50's Unit/Issue: BT Allowance: 400 Authority: CTA 8–100

Notes:

¹ Unit/Issue entries are computer entry codes; for example, BT is the code for bottle and PG is package.

a. PVNTMED teams will—

(1) Prepare for deployment in support of contingency or disaster relief operations within 24 hours after notification. Predeployment measures will include—

- (a) Readiness of authorized equipment and vehicles.
- (b) Stocking of prescribed expendables.

(c) Procurement of CTA 50–900 equipment for augmentation personnel.

(d) Rehearsal of loading plans.

(e) Coordination with the Armed Forces Medical Intelligence Center and Armed Forces Pest Management Information Analysis Center, as applicable, concerning epidemiologic and vector information on regions of likely deployment.

(2) Participate in field training exercises, as directed. Staff coordinating procedures will be emphasized to assure that the supported unit will make full use of technical resources if strategic deployment becomes necessary.

(3) Not normally be used as field sanitation teams for hospitals, headquarters, or other units to which attached.

b. HSC will—

(1) Maintain a roster of professional fillers to facilitate augmentation of Forces Command PVNTMED teams in the event of disaster relief operations or contingency force deployment.

(2) Schedule annual liaison visits for key filler personnel to facilitate rapport and to assure both individual and team deployment readiness.

c. USAPACEHEA will maintain an active capability to—

(1) React to requests from Commander in Chief, U.S. Army, Pacific (CINCUSARPAC) for assistance in disaster relief operations. Perform necessary liaison with key CINCUSARPAC personnel to assure effective disaster relief response.

(2) Perform basic field PVNTMED operations in areas of mobilizing troop concentrations (within the Pacific Theater); until PVNTMED teams organic to the mobilizing force can arrive on site

and become mission effective. Participate in field exercises to ensure this capability is well practiced.

d. The full range of PVNTMED services will be provided.

(1) *Command and control, AM teams (if deployed).* The AM teams will provide command and control for PVNTMED teams in the area of operations. The operations of individual teams will be decentralized, whenever possible, with attachment to corps elements at greatest risk.

(2) *Entomology service, LA teams.* The LA teams will provide entomology support for all elements in the area of operations with support priority to combat units. During the strategic deployment phase of contingency operations, emphasis will be on preemptive suppression of high risk vectors near assembly areas and along routes of movement. As tactical elements deploy for action, LA teams will be prepared to extend services in response to requests from division and corps surgeons.

(3) *Environmental sanitation service, LB teams.* The division preventive medicine section will monitor the status of company-level PMM. They will provide consultative support as necessary, to include the onsite training of field sanitation teams. Support priority will go to combat units. During the strategic deployment phase of contingency operations, emphasis will be on assembly areas near points of debarkation. As tactical elements deploy for action, LB teams will be prepared to shift emphasis forward to brigade and/or battalion trains in response to requests from division surgeons. LB teams will coordinate with civil affairs and military police to assure that refugee enclaves and prisoner compounds do not become foci of epidemic disease.

(4) *Environmental engineering service, LC teams.* The LC teams will provide the same services cited for LB teams. During the strategic deployment phase of contingency operations, emphasis will be on points of debarkation (airfields and ports). As corps elements deploy from initial staging areas, support priority will shift to corps support groups and area support groups as they become established along lines of communication. LC teams will coordinate with LB teams to assure optimum use of technical resources in the corps as a whole. LC teams will coordinate with the engineers and civil affairs to assure restoration of water, wastewater treatment, and waste disposal facilities in towns and villages within the area of operations.

(5) *Epidemiology service, LD teams.* The LD teams will provide epidemiologic services in the area of operations. During the strategic deployment phase of contingency operations, emphasis will be on population centers near assembly areas and along proposed routes of movement to assure early detection of disease. As corps elements deploy for action, support priority will shift to combat units in response to requests from division surgeons.

(6) *Entomology laboratory, LE teams.* The LE teams will provide entomological laboratory support for LA teams in the area of operations with initial emphasis on pesticide resistance assessments to facilitate early procurement of alternative pesticides, if warranted.

(7) *Veterinary, JA/JB teams.* The JA/JB teams will provide veterinary medical support in areas of operations with initial emphasis on wholesomeness and acceptability of food supplies or sources.

(a) Initial emphasis will concentrate on protection of the disrupted populace from potentially epidemic diseases.

(b) Early coordination with host nation public health authorities will be accomplished to assure consonance with local environmental constraints and to permit use of local resources.

(c) Overall emphasis will be on restoration of local capacity for self-support.

Student Handout 2

This Student Handout Contains	Chapters one and three extracted from FM 21-10, Field Hygiene and Sanitation, Jun 00
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CHAPTER 1

INTRODUCTION TO THE MEDICAL THREAT

Section I. MESSAGE TO THE UNIT COMMANDER

DISEASE AND NONBATTLE INJURY

A DNBI casualty can be defined as a military person who is lost to an organization by reason of disease or injury, and who is not a battle casualty. This definition includes persons who are dying of disease or injury due to accidents directly related to the operation or mission to which they were deployed. The acronym, DNBI, does not include service members missing involuntarily because of enemy action or being interned by the enemy (as a prisoner of war). The total number of DNBI casualties is evaluated to identify DNBI rates per number of service members in an operation. The DNBI rates are critical in evaluating the effectiveness of PVNTMED missions within the area of operations (AO) and in determining the health of a force within an operation.

Historically, in every conflict the US has been involved in, only 20 percent of all hospital admissions have been from combat injuries. The other 80 percent have been from DNBI. Excluded from these figures are vast numbers of service members with decreased combat effectiveness due to DNBI not serious enough for hospital admission.

1-1

Preventive medicine measures are simple, common sense actions that any service member can perform and every leader must know. The application of PMM can significantly reduce time loss due to DNBI.

*How Much Time Does Your Unit Spend Training Service Members on—
Disease and Nonbattle Injury Prevention?
Combat Injury Prevention?*

YOUR RESPONSIBILITY

You are responsible for all aspects of health and sanitation of your command. Only you can make command decisions concerning the health of your unit in consideration of the—

- Mission.
- Medical threat.
- Condition of troops.

DO NOT LET THIS HAPPEN TO YOU

Togatabu Island, 1942: The 134th Artillery and the 404th Engineer Battalions were part of a task force preparing to attack Guadalcanal. Fifty-five percent of the engineers and sixty-five

1-2

percent of the artillerymen contracted a disease called *filariasis* transmitted by mosquitoes. Both units had to be replaced (medically evacuated) without seeing any enemy action because they were not combat ready. The use of insect repellents and insecticides and the elimination of standing water would have prevented this.

Merrill's Marauders: Disease was an important detractor to this famous unit. The medical threat faced by the Marauders in the jungles of Burma was great. Everyone was sick, but some had to stay and fight. Evacuation was limited to those with high fever and severe illness. One entire platoon cut the seats from their pants because severe diarrhea had to be relieved during gunfights. After a bold and successful attack on a major airfield, Merrill's Marauders were so decimated by disease that they were disbanded.

Section II. THE MEDICAL THREAT AND PRINCIPLES OF PREVENTIVE MEDICINE MEASURES

The medical threat is—

- Heat.
- Cold.
- Arthropods and other animals.
- Food- and waterborne diseases.
- Toxic industrial chemicals/materials.
- Noise.
- Nonbattle injury.
- The unfit service member.

1-3

PRINCIPLES OF PREVENTIVE MEDICINE MEASURES

- Service members perform individual techniques of PMM.
- Chain of command plans for and enforces PMM.
- Field sanitation teams train service members in PMM and advise the commander and unit leaders on implementation of unit-level PMM.

Failure to Apply the Principles of PMM Can Result in Mission Failure.

1-4

CHAPTER 3

LEADERS' PREVENTIVE MEDICINE MEASURES**NOTE**

In addition to the specific measures that follow, leaders must remember and apply the principle that the most effective PMM they can apply is to visibly set the example in the use of all the individual PMM that are discussed throughout this FM.

Section I. HEAT INJURIES**PLAN FOR THE HEAT**

- Maximize physical fitness and heat acclimatization before deployment.
 - Use your FST to train individuals and their leaders in PMM against heat.
 - Acclimatize personnel to high temperatures as gradually as the mission will allow.
- 3-1**
- Brief service members on dangers of sunburn and skin rashes and the importance of good personal field hygiene.
 - Obtain weather forecast for time/area of training/mission.
 - Ensure adequate supplies of potable water are available (up to 3 gallons per day per service member just for drinking) (See Table 3-1). Issue a second canteen to service members in hot weather operations. In the desert, additional canteens may be required.
 - Know the location of water distribution points.
 - Set up a buddy system to maximize rehydration and minimize heat injuries.
 - Ensure medical support is available for treatment of heat injuries.
 - Plan the placement of leaders to observe for and react to heat injuries in dispersed training (road marches), or operational missions.
 - If the mission permits, plan to—
 - Train during the cooler morning hours.

3-2

- Serve heavy meals in the evening, rather than at noon.

OBTAIN AND USE HEAT CONDITION INFORMATION

- Obtain heat condition information per your unit's SOP or contact the local supporting PVNTMED detachment or section. Heat condition may be reported as—
 - Category: 1, 2, 3, 4, and/or 5.
 - Wet bulb globe temperature (WBGT) index.
- Use heat condition information to determine required water intake and work/rest cycles (Table 3-1).

NOTE

Training by lecture or demonstration, maintenance procedures on equipment, or personal hygiene activities (such as skin and foot care) can be performed during rest periods.

3-3

*Table 3-1. Fluid Replacement Guidelines for Warm Weather Training
(Applies to Average Acclimated Service Member Wearing Hot Weather Uniform)*

HEAT CATEGORY	WBGT INDEX DEGREES F	EASY WORK		MODERATE WORK		HARD WORK	
		WORK/ REST MIN	WATER INTAKE QT/HR	WORK/ REST MIN	WATER INTAKE QT/HR	WORK/ REST MIN	WATER INTAKE QT/HR
1	78-81.9	NL	1/2	NL	3/4	40/20	3/4
2 (GREEN)	82-84.9	NL	1/2	50/10	3/4	30/30	1
3 (YELLOW)	85-87.9	NL	3/4	40/20	3/4	30/30	1
4 (RED)	88-89.9	NL	3/4	30/30	3/4	20/40	1
5 (BLACK)	> 90	50/10	1	20/40	1	10/50	1

The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Individual water needs will vary $\pm 1/4$ quart/hour.

NL= no limit to work time per hour.

Rest means minimal physical activity (sitting or standing) accomplished in shade, if possible.

CAUTION: Hourly fluid intake should not exceed 1 1/4 quarts.

Daily fluid intake should not exceed 12 liters.

Wearing body armor adds 5° F to WBGT Index.

Wearing all MOPP overgarments adds 10° F to WBGT Index.

3-4

*Table 3-1. Fluid Replacement Guidelines for Warm Weather Training (Continued)
(Applies to Average Acclimated Service Member Wearing Hot Weather Uniform)*

EASY WORK	MODERATE WORK	HARD WORK
WEAPON MAINTENANCE WALKING HARD SURFACE AT 2.5 MPH, ≤ 30 LB LOAD GUARD DUTY MARKSMANSHIP TRAINING DRILL AND CEREMONY	WALKING LOOSE SAND AT 2.5 MPH, NO LOAD WALKING HARD SURFACE AT 3.5 MPH, ≤ 40 LB LOAD CALISTHENICS PATROLLING INDIVIDUAL MOVEMENT TECHNIQUES, SUCH AS LOW CRAWL, HIGH CRAWL DEFENSIVE POSITION CONSTRUCTION	WALKING HARD SURFACE AT 3.5 MPH, ≥ 40 LB LOAD WALKING ON LOOSE SAND AT 2.5 MPH WITH LOAD FIELD ASSAULTS

WARNING

Hourly fluid intake should not exceed 1¼ quarts. Daily fluid intake should not exceed 12 liters.

3-5

ENFORCE INDIVIDUAL PREVENTIVE MEDICINE MEASURES

Leaders must—

- Enforce water intake by—
 - Observing service members drinking required amounts. Encourage frequent drinking of water in small amounts.
 - Ensuring that service members practice good field hygiene.
 - Providing cool water; if desired, you can add flavoring after disinfection to enhance consumption. Personnel should use their canteen cup for consumption of flavored water. **DO NOT add flavoring to canteen water; use only plain water in canteen.**
 - Ensuring troops drink water before starting any hard work or mission (in the morning, with/after meals).
 - Ensuring buddy system is being used.
 - Frequently checking service members' canteens for water; not beverages.

3-6

- Making sure service members have adequate time to eat and drink as mission permits. Permit personnel to consume carbohydrate/electrolyte beverages (sports drinks) as supplemental nutrients under conditions of extreme calorie and water requirements; such as extremely vigorous activities.
- Reduce heat injuries by—
 - Enforcing work/rest cycles when the mission permits. Permitting personnel to work/rest in the shade, if possible.
 - Encouraging service members to eat all meals for needed salts.
 - Adjusting workload to size of individuals, when possible.
 - Be prepared for heat casualties and decreased performance when water and work/rest cycle recommendations cannot be met.

MODIFY WEAR OF THE UNIFORM

Direct/authorize service members to—

- Keep skin covered while in sun.
- Keep uniform loose at neck, wrists, and lower legs (unblouse pants).

3-7

NOTE

If the medical threat from biting arthropods is high, keep sleeves rolled down and pants bloused in boots.

IDENTIFY SPECIAL CONSIDERATIONS

Identify and modify training/physical activity for service members with high-risk conditions of heat injuries, such as—

- Diseases/injuries, especially fevers, vomiting, diarrhea, heat rash, or sunburn.
- Use of alcohol within the last 24 hours.
- Overweight/unfit.
- Over 40 years old.
- Fatigue/lack of sleep.
- Taking medication (especially for high blood pressure, colds, or diarrhea).
- Previous heatstroke/severe heat exhaustion.
- Lack of recent experience in a hot environment.

3-8

Section II. COLD INJURIES

PLAN FOR THE COLD

- Use your FST to train individuals and their leaders in PMM against cold.
- Obtain weather forecast for time/area of training/mission.
- Ensure the following are available as the tactical situation permits:
 - Covered vehicles for troop transport, if tactical situation permits.
 - Cold weather clothing.
 - Laundry services.
 - Warming tents/areas.
 - Hot rations/hot beverages.
 - Drinking water.
- Inspect service members (before starting training/mission) to ensure—
 - Availability, proper fit, and wear of cold weather gear.
- Clean, dry, proper-fitting clothing.
- Each service member has several pairs of socks, depending on the nature and duration of the mission.
- Frequently rotate guards or other service members performing inactive duties.
- Ensure medical support is available for treatment should cold weather injuries occur.

3-9

DETERMINE AND USE WINDCHILL FACTOR

- Obtain temperature and wind speed information as directed by your unit's SOP or contact the local supporting PVNTMED detachment or section.
- Calculate windchill from Table 3-2.

NOTE

Cold injuries can and do occur in nonfreezing temperatures. Hypothermia can occur in mildly cool weather.

3-10

Table 3-2. Windchill Chart

ESTIMATED WIND SPEED (IN MPH)	ACTUAL TEMPERATURE READING (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	EQUIVALENT CHILL TEMPERATURE (°F)											
CALM	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(WIND SPEEDS GREATER THAN 40 MPH HAVE LITTLE ADDITIONAL EFFECT.)	LITTLE DANGER IN LESS THAN ONE HOUR WITH DRY SKIN. MAXIMUM DANGER OF FALSE SENSE OF SECURITY.					INCREASING DANGER DANGER FROM FREEZING OF EXPOSED FLESH WITHIN ONE MINUTE.				GREAT DANGER FLESH MAY FREEZE WITHIN 30 SECONDS.		
NOTE: 1. TRENCH FOOT AND IMMERSION FOOT MAY OCCUR AT ANY POINT ON THIS CHART. 2. F = 9/5 C + 32.												

3-11

Table 3-3. Windchill Categories (See Windchill Table)

WORK INTENSITY	LITTLE DANGER	INCREASED DANGER	GREAT DANGER
HIGH DIGGING FOXHOLE, RUNNING, MARCHING WITH RUCKSACK, MAKING OR BREAKING BIVOAC	INDIVIDUALS OR SMALL UNIT LEADERS: BLACK GLOVES OPTIONAL; MANDATORY BELOW 0 DEGREES F; INCREASED HYDRATION.	INCREASED SURVEILLANCE BY EXTREME COLD WEATHER SYSTEM OR EQUIVALENT; MITTENS WITH LINERS; NO FACIAL CAMOUFLAGE; EXPOSED SKIN COVERED AND KEPT DRY; REST IN WARM, DRY, SHELTERED AREA; COLD WEATHER, VAPOR BARRIER BOOTS BELOW 0 DEGREES F.	POSTPONE NON- ESSENTIAL ACTIVITY; ESSENTIAL TASKS ONLY WITH LESS THAN 15 MINUTES EXPOSURE; COVER ALL SKIN.
LOW WALKING, MARCHING WITHOUT RUCKSACK, DRILL AND CEREMONY	INCREASED SURVEILLANCE; COVER EXPOSED FLESH WHEN POSSIBLE; MITTENS WITH LINERS AND NO FACIAL CAMOUFLAGE BELOW 10 DEGREES F; FULL HEAD COVER BELOW 0 DEGREES F; KEEP SKIN DRY, ESPECIALLY AROUND NOSE AND MOUTH.	RESTRICT NONESSENTIAL ACTIVITY; 30-40 MINUTE WORK CYCLES WITH FREQUENT SUPERVISORY SURVEILLANCE FOR ESSENTIAL TASKS (SEE ABOVE).	CANCEL OUTDOOR ACTIVITY, IF POSSIBLE.
SEDENTARY SENTRY DUTY, EATING, RESTING, SLEEPING, CLERICAL WORK	SEE ABOVE; FULL HEAD COVER AND NO FACIAL CAMOUFLAGE BELOW 10 DEGREES F; COLD WEATHER, VAPOR BARRIER BOOTS BELOW 0 DEGREES F; SHORTEN DUTY CYCLES; PROVIDE WARMING.	POSTPONE NONESSENTIAL ACTIVITY; 15-20 MINUTE WORK CYCLES FOR ESSENTIAL TASKS; WORK GROUPS OF NO LESS THAN 2 PERSONNEL; NO EXPOSED SKIN.	CANCEL OUTDOOR ACTIVITY, IF POSSIBLE.

3-12

These guidelines are generalized for worldwide use. Commanders of units with extensive extreme cold weather training and specialized equipment may opt to use less conservative guidelines.

- Then use Table 3-4 to apply PMM guidance:

Table 3-4. Windchill Preventive Medicine Measures

WINDCHILL	PREVENTIVE MEDICINE MEASURES
30° F AND BELOW	ALERT PERSONNEL TO THE POTENTIAL FOR COLD INJURIES.
25° F AND BELOW	LEADERS INSPECT PERSONNEL FOR WEAR OF COLD WEATHER CLOTHING. PROVIDE WARM-UP TENTS/AREAS/HOT BEVERAGES.
0° F AND BELOW	LEADERS INSPECT PERSONNEL FOR COLD INJURIES. INCREASE THE FREQUENCY OF GUARD ROTATIONS TO WARMING AREAS. DISCOURAGE SMOKING.
-10° F AND BELOW	INITIATE THE BUDDY SYSTEM—HAVE PERSONNEL CHECK EACH OTHER FOR COLD INJURIES.
-20° F AND BELOW	MODIFY OR CURTAIL ALL BUT MISSION-ESSENTIAL FIELD OPERATIONS.

3-13

- The windchill index gives the equivalent temperature of the cooling power of wind on exposed flesh.
 - Any movement of air has the same effect as wind (running, riding in open vehicles, or helicopter downwash).
 - Any dry clothing (mittens, scarves, masks) or material which reduces wind exposure will help protect the covered skin.
- Trench foot injuries can occur at any point on the windchill chart and—
 - Are much more likely to occur than frostbite at “LITTLE DANGER” windchill temperatures, especially on extended exercises/missions and/or in wet environments.
 - Can lead to permanent disability, just like frostbite.

IDENTIFY SPECIAL CONSIDERATIONS

- Conditions that place service members at high risk of cold injuries include—
 - Previous trench foot or frostbite.

3-14

- Fatigue.
- Use of alcohol.
- Significant injuries.
- Poor nutrition.
- Use of medications that cause drowsiness.
- Little previous experience in cold weather.
- Immobilized or subject to greatly reduced activity.
- Service members wearing wet clothing.
- Sleep deprivation.
- Identify the special hazards of carbon monoxide poisoning and fire that may affect your cold weather operations.

ENFORCE INDIVIDUAL PREVENTIVE MEDICINE MEASURES

- Ensure service members wear clean and dry uniforms in loose layers.

3-15

- Ensure service members remove outer layer(s) before starting hard work or when in heated areas (before sweating).
- Have service members inspect their socks and feet at least daily when operating in cold and/or wet environments.
- Ensure service members to—
 - Wash their feet daily.
 - Wear clean and dry socks.
 - Use warming areas when available.
 - Eat all meals to ensure sufficient calories are consumed to maintain body heat.
 - Drink plenty of water and/or nonalcoholic fluids. In cold weather, fluid intake is often neglected, leading to dehydration.
 - Exercise their big muscles or at least their toes, feet, fingers, and hands to keep warm.
- Institute the buddy system in cold weather operations. Service members taking care of each other decrease cold injuries.

3-16

Section III. ARTHROPODS AND OTHER ANIMALS OF MEDICAL IMPORTANCE

PLAN FOR THE ARTHROPOD, RODENT, AND OTHER ANIMAL THREAT

- Obtain information on biting and stinging arthropods and other animals (such as snakes, domestic and wild animals, or birds) which could be a threat—
 - Through unit medical channels from the command PVNTMED representative.
 - From the health service support (HSS) annex to operation plan/order.
- Use your FST—
 - Train your service members in PMM.
 - Control insects and other medically important arthropods in your AO.
 - Control rodents and other medically important animals in your AO.
 - Remind service members to avoid handling insects, arthropods, snakes, and other animals to prevent bites or injury. Animals that appear to be healthy may transmit rabies and other zoonotic diseases.

3-17

- Keep personnel from eating in sleeping/work areas; prevent attracting insects, rodents, and other animals.
- Animal mascots should not be kept or maintained unless cleared by veterinary personnel.
- Ensure that—
 - Each service member has a bed net in good repair and treated with permethrin repellent.
 - Immunizations are current. Prophylaxis (for example, anti-malaria tablets) is available for issue as required.
 - Laundry and bathing facilities are available.
 - Field sanitation team supplies and equipment are available and can be replenished.
- Request assistance from a PVNTMED unit (through medical or command channels) when control of biting arthropods, rodents, or other animals is beyond the capabilities of your unit.

ENFORCE INDIVIDUAL PREVENTIVE MEDICINE MEASURES

- Ensure all uniforms are impregnated with permethrin before field training or deployment.

3-18

- Ensure each service member has DOD skin (DEET) and clothing (permethrin) insect repellent and uses them. However, cooks, other food handlers, and kitchen police personnel must not use repellent on their hands when preparing and serving food, or when cleaning food service utensils, dishes, and food serving areas.
- Direct service members to keep—
 - Shirts buttoned.
 - Sleeves rolled down.
 - Pants bloused inside boots.
- Ensure service members—
 - Bathe/shower regularly (field expedients will do); a field shower or bath with a clean change of uniform should be accomplished once each week to control body lice.
 - Discontinue the use of aftershave lotions, colognes, perfumes, and scented soaps; they attract insects.
 - Use permethrin treated bed nets and the DOD-approved aerosol insect (Insecticide, d-Phenothrin, 2%, Aerosol, NSN 6840-01-412-4634); spray inside the net if necessary.

3-19

- Observe service members taking anti-malaria pills or other prophylaxis (when prescribed by the medics).
- Use your FST to identify suspected lice infestations and refer for medical treatment.

MINIMIZE EXPOSURE TO ARTHROPOD, RODENT, AND ANIMAL THREAT

- If the mission permits—
 - Use your FST to assist you in selecting bivouac sites.
 - Occupy areas distant from insect/arthropod breeding areas such as natural bodies of water.
 - Avoid areas with high grass or dense vegetation.
 - Use FST recommendations and assistance in applying pesticides for area control around living areas and in natural bodies of water.
 - Drain or fill in temporary standing water sites in occupied area (empty cans, used tires, or wheel ruts after rains).
 - Clear vegetation in and around occupied area.

3-20

- Maintain area sanitation by enforcing good sanitation practices.
 - Properly dispose of all waste.
 - Protect all food supplies.
 - Police area regularly.
 - Exclude pests (rats, mice, lice, and flies).

NOTE

See Appendix A for performance of tasks relating to PMM against arthropods and rodents.

Section IV. POISONOUS PLANTS AND TOXIC FRUITS

- Obtain information on poisonous plants and toxic fruits that could be a threat—
 - Through unit medical channels from the command PVNTMED representative.
 - From the HSS annex to operation plan/order.

3-21

- Use your FST to—
 - Train your service members in PMM.
 - Display and provide information on the kinds of dangerous plants and fruits in the unit area.
- Enforce individual PMM by—
 - Proper wearing of the uniform.
 - Avoidance of poisonous plants where possible.
 - Avoidance of consuming potentially dangerous vegetation and fruits.
 - Avoidance of putting grasses and twigs in the mouth.

Section V. FOOD-WATER-WASTEBORNE DISEASE/ILLNESS

PLAN FOR SAFE WATER

- Know the location of approved water distribution points.

3-22

- Make sure your unit has an adequate supply of—
 - Iodine water purification tablets (1 bottle for each individual).
 - Field chlorination kits.
 - Bulk chlorine.
 - Chlor-Floc® kits.
- Ensure water trailers and tankers (400 gallon and above) are inspected by PVNTMED personnel semiannually.
- Inspect water containers before use.
- Check the residual chlorine of bulk water supplies (5-gallon cans, water pillows, water trailer) before drinking and at least daily thereafter. (See Tasks 7 and 8, Appendix A.)

PLAN FOR SAFE FOOD

- Ensure food service personnel maintain foods at safe temperatures.
- Inspect food service personnel daily and refer for medical evaluation those with illness and/or skin infections.

3-23

- Make sure foods, drinks, and ice purchased from civilian vendors are approved by the command medical authority.
- Supervise the use of the mess kit laundry/sanitation center.
- Ensure food service personnel and service members use handwashing devices.
- Ensure all food waste is transported to an approved disposal site, buried, or burned daily (at least 30 meters from food preparation area and water source).

PLAN FOR THE CONSTRUCTION AND MAINTENANCE OF FIELD SANITATION DEVICES

- Determine type of field waste disposal devices required.
 - The primary type of human waste disposal devices in bivouac areas are the chemical toilets. Individual waste collection bags are the primary type used when on the march.
 - The type of improvised waste disposal used will depend on the mission, length of stay in the area, terrain, and weather conditions. When chemical toilets are not available, the burn-out latrine is the preferred improvised waste disposal device.

3-24

NOTE

Always check local, state, federal, or host-nation regulations for restrictions or prohibitions on using standard or improvised field devices and waste disposal in the field.

- Select locations for field latrines.
 - As far from food operations as possible (100 meters or more). Downwind and down slope, if possible.
 - Down slope from wells, springs, streams, and other water sources (30 meters or more).
- Set up, construct, and maintain latrines (see Task 9, Appendix A, for requirements).
 - As soon as the unit moves into a new area, detail service members to set up chemical toilets or dig latrines. (See previous **NOTE**.)
 - Detail service members to clean latrines daily.
 - Instruct the FST to spray the latrines with insecticide as necessary (not the pit contents).
 - Always provide handwashing facilities at the food service facilities and the latrines. Make use of handwashing devices at latrines mandatory.

3-25

- Cover, transport, burn, or bury waste daily.
- Use the FST to train service members and unit leaders in PMM against food-/water-/wasteborne diseases.

NOTE

See Appendix A for performance of tasks relating to PMM against food-/water-/wasteborne diseases.

Section VI. PERSONAL HYGIENE AND PHYSICAL AND MENTAL FITNESS**KEEP YOUR UNIT PHYSICALLY FIT**

- Ensure that leaders at all levels recognize the benefits of physical fitness. Leaders must be role models, leading by example.
- Take a positive approach to physical fitness with service members. A physically fit service member is less likely to be a combat loss from disease or injury.

3-26

NOTE

See FM 21-20 for more information.

PLAN FOR PERSONAL HYGIENE

- Provide shower/bathing facilities in the field. All personnel must bathe at least once a week and have a clean change of clothing to reduce the health hazard associated with body lice.
- Inspect service members' personal equipment to ensure they have sufficient personal hygiene supplies—soap, washcloths, towels, a toothbrush, dental floss, fluoride toothpaste, and razor and razor blades (females should have sanitary napkins or tampons).
 - Ensure undergarments are cotton (not silk, nylon, or polyester).
 - Ensure uniforms fit properly (not tight).
 - Ensure service members have several pairs of issue boot socks; the number will depend on the type and length of the mission.
- Use your FST to train your service members in personal hygiene.

3-27

- Ensure service members receive annual dental examinations and needed oral health care. Make sure all oral health appointments are kept. Use low operational requirement periods to ensure all personnel maintain a good oral health status.

ENFORCE SLEEP DISCIPLINE

- The mission, unit readiness, and individual security must come first, but never miss a chance to give everyone in the unit time to sleep.
- When feasible, set work/rest shifts.
- Do not allow service members to sleep in areas where they may be run over by vehicles, or in other unsafe areas.
- During *continuous operations*, set shifts and rotate jobs to allow everyone at least 3 to 4 hours uninterrupted sleep per 24-hour period.
- During brief (up to 48 hours) sustained operations when shifts are impossible, rotate jobs so all individuals catnap as safely and comfortably as possible. The loss of sleep will reduce the service member's ability to perform his duties and the leader's ability to make decisions.

3-28

NOTE

Ensure that sleeping individuals observe safety precautions. Use ground guides for vehicles in bivouac areas.

ENFORCE PREVENTIVE MEDICINE MEASURES FOR THE EFFECTS OF SLEEP LOSS

- Those individuals with the most complex mental or decision-making jobs need the most sleep. This means you and your most critical leaders and operators!
- Cross train individuals to perform the critical tasks and delegate limited authority among leaders, thus enabling all to get necessary rest.

ENSURE WELFARE, SAFETY, AND HEALTH OF UNIT

- Ensure the best and safest water, food, equipment, shelter, sanitation, and sleep possible are provided.
 - Educate service members to maintain professional pride and personal caring for themselves, each other, and their equipment.
- 3-29**
- Know the personal backgrounds and the military skills of your service members. Chat with them informally about themselves. Be attentive and understanding while listening to service members.
 - Utilize group support and counsel for service members with *home front* problems.
 - Assign jobs to maintain a balance between having qualified people in key positions while sharing the load, hardship, and risks fairly.
 - Use challenging and difficult environments during training to increase your own and the unit's coping skills and confidence.

REDUCE UNCERTAINTY BY KEEPING EVERYONE INFORMED

- Brief unit personnel on the situation, objectives, and conditions that the mission or environment may involve.
- Explain reasons for hardships, delays, and changes.
- Do not give false reassurances. Prepare your service members for the worst and put any unexpected challenges or reversals in a positive perspective.
- Deal with rumors firmly and honestly. Prevent the spread of rumors.
- Make contingency plans and follow SOP to reduce the effects of surprise.

3-30

PROMOTE COHESION WITHIN THE UNIT

- Use equipment drills, physical fitness training, team sports, and field *stress training* to stimulate mutual reliance and closeness.
- Bring unit members together for meals, award ceremonies, and other special occasions.
- Integrate new members by assigning sponsors and ensuring rapid familiarization.

IMPART UNIT PRIDE

- Educate service members in the history and tradition of the small unit, its parent units, and the branch of Service.
- Honor the historical examples of initiative, endurance, and resilience, of overcoming heavy odds, and of self-sacrifice.

Section VII. NOISE**PLAN FOR NOISE**

- Identify existing noise in your unit. If necessary, request PVNTMED assistance in identifying sources.

3-31

- Ensure that hearing conservation is part of the unit SOP.
- Ensure all service members are medically fitted for hearing protectors and are issued multiple sets.
- Ensure all service members have annual hearing test/screening.
- Control noise sources.
 - Isolate by distance; that is, keep troops away from noise, if possible.
 - Isolate by barrier; for example, use sandbags.
 - Use organic equipment controls; for example, keep mufflers and engine covers in good repair.
- Train unit to do mission while wearing hearing protectors.
- Post **Noise Hazard** signs in noise hazardous areas and on noise hazardous equipment.

ENFORCE INDIVIDUAL PROTECTIVE MEASURES

Ensure that service members—

- Wear earplugs or other hearing protective devices.

3-32

- Do not remove inserts from aircraft or tracked vehicle helmets.
- Avoid unnecessary exposure.
- Limit necessary exposure to short, infrequent, mission-essential times.
- Clean their hearing protectors.

PROTECT MISSION

- Be aware of short-term noise effects on the service member's ability to hear combat significant noise.
- Assign listening post (LP)/observation post (OP) to troops least affected by noise, augment LP/OP with night vision devices and/or increase the number of audible alarms around your position.

Section VIII. TOXIC INDUSTRIAL CHEMICALS/MATERIALS

PLAN FOR CHEMICALS

- Identify sources of toxic industrial chemicals/materials in your unit. If necessary, request PVNTMED assistance in identifying sources.

3-33

- Obtain safer chemicals for unit operations, if available.
- Observe cautions/warnings posted in technical manuals dealing with solvents corrosives, and other hazardous materials. (Refer to MSDS that accompany stores of toxic chemicals/materials.)

ENFORCE INDIVIDUAL PREVENTIVE MEDICINE MEASURES

Ensure that service members—

- Repair engines outside or vent engine exhaust to outside.
- Keep their sleeping quarters ventilated.
- Do not use vehicle engines as heaters.
- Use/maintain onboard ventilation systems.
- Are trained and drilled to self-protect themselves around hydrogen chloride and M8 smoke.
- Maintain bore/gun gas evacuation systems.
- Use "safety" Stoddard solvent.

3-34

- Have adequate clean gloves, coveralls, and other protective gear.
- Follow label instructions on chemical containers.

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Student Handout 3

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Contains**

Appendix E extracted from FM 21-10-1, Unit Field Sanitation Team, Jun 89

APPENDIX E

SAMPLE UNIT SOP FOR FIELD SANITATION

NOTE: This SOP satisfactorily shows positive actions and specific duties considered suitable for a company-sized unit. Format, actions, time frames, and techniques are shown as examples only and are not intended to apply in all cases or to all units. For most units the scope, actions, quantities, and responsibilities need to be adapted to local commander's requirements.

1. References.

- a. AR 40-5, Preventive Medicine.
- b. FM 21-10, Field Hygiene and Sanitation.

2. Purpose. To reduce disease and nonbattle injury (DNBI) by ensuring that effective preventive medicine measures (PMM) are routinely and habitually practiced under all field conditions.

3. Scope. This SOP specifies for all field exercises and contingencies:

- a. the required field sanitation team (FST) supplies and equipment;
- b. the routine, special, and emergency PMM to be taken; and,
- c. the responsibilities for the accomplishment of PMMs.

4. Field Sanitation Team. The Field Sanitation Team is appointed by the Commander as his special representatives to oversee and observe preventive medicine measures prior to, during, and after field exercises or contingencies. By reason of special training, they know and are authorized to initiate the necessary PMMs to reduce DNBI to the lowest possible level. The PMMs that will always be accomplished by the designated individual(s) are identified below.

5. Key. The individual(s) with the requirement for performing the indicated PMM task is identified in the ACTION column. The SUPERVISE/FOLLOW-UP column identifies the leader/NCO responsible. The individuals are keyed as follows:

AP—Advance Party Leader
 CD—Commander
 DF—Dining Facility Sergeant
 DL—Assigned Detail
 FS—Field Sanitation Team
 KP—Kitchen Police

ME—Senior Medical Aidman
 SS—Supply Sergeant
 UL—All OFF/NCO
 IC—First Cook
 IS—First Sergeant

ACTION SUPERVISE/
 FOLLOWUP

6. Actions and Responsibilities

a. *Planning and Preparations.*

- | | | |
|---|----|----|
| (1) Provide personal PMM instruction to troops. | FS | IS |
| (2) Check supplies, equipment, and loading. | FS | IS |
| (3) Water/water trailer. | | |
| (a) Clean/fill/chlorinate/test (5 ppm). | ME | DF |
| (b) Locate Quartermaster water point(s). | SS | FS |
| (c) Determine quantity needed. | FS | IS |
| (4) If potentially hazardous food. | | |
| (a) Get ice chest(s)/container(s). | DF | IS |
| (b) Locate ice point(s). | SS | FS |

	ACTION	SUPERVISE/ FOLLOWUP
(5) Rubbish/garbage.		
(a) Provide for containers.	SS	FS
(b) Locate disposal point(s).	SS	FS
(6) Assure sufficient insect/rodent-proof food containers.	IC	DF
(7) Plan and train for contingencies in—		
(a) Hot temperatures.	IS	CD
(b) Cold temperatures.	IS	CD
b. Arrival at Field Site.		
(1) Spot/set up dining facility and latrine.	AP	FS
(2) Dig straddle trenches/urinals (1-14 days).	DL	FS
(3) Dig deep pit (7 plus days).	DL	FS
(4) Dig soakage pit (liquid kitchen waste).	DL	DF
(5) Spot/set up rubbish/garbage collection points (if no burial).	DL	FS
(6) Spot/set up water purification bag.	IS	FS
(7) Spot/set up handwashing devices (at dining facility and latrine).	ME	FS
c. Routine Actions.		
(1) Set up/boil water in mess kit laundry.	DF	FS
(2) Test chlorine residual daily.	FS	ME
(3) Chlorinate/disinfect if test fails.	FS	ME
(4) Schedule/remove garbage/rubbish (every 2 days).	SS	IS
(5) Inspect for/destroy fly/mosquito breeding places.	FS	IS
(6) Police food/drink spills to prevent fly breeding and rodent infestations.	UL	FS
(7) Inspect mess kit cleaning.	UL	FS
(8) Inspect utensils/ranges/tables/containers after cleanup following meals.	DF	FS
(9) Observe/inspect personal hygiene of troops.	UL	IS
(10) Police latrine daily; Control flies as required.	DL	FS
d. Special Conditions/Actions.		
(1) Foot marches.		
(a) Prior to.	UL	IS
(b) During and after.	UL	IS
(2) Cold Temperature (below 50° F/10°C):		
(a) Provide for exercise (such as, frequent road halts).	UL	IS
(b) Instruct on wear/drying of clothing/footwear.	UL	IS
(c) Instruct on prevention of trench foot, immersion foot, frostbite, snow blindness, and carbon monoxide poisoning.	ME	FS
(d) Provide for and heat latrine.	DL	FS
(e) Inspect feet/footwear of troops.	UL	IS
(3) Hot temperature (Wet Bulb Globe Temperature Index (WBGT) over 85).		

	ACTION SUPERVISE/ FOLLOWUP	
(a) Obtain WBGT daily.	ME	FS
(b) Schedule work for acclimatization.	IS	CD
(c) Provide adequate water.	FS	IS
(d) Instruct troops on cause and prevention of heat exhaustion, heat stroke, heat cramps, sunburn, prickly heat, and fungus infections.	ME	UL
e. Emergency Conditions/Actions.		
(1) Loss of bath/laundry support.		
(a) Intensify personal hygiene inspections/observations.	UL	IS
(b) Provide expedient shower/laundry devices.	DL	FS
(c) Inspect troops for body lice three weeks after loss of support in cold weather. (Notify medical personnel if body lice are found.)	FS	ME
(2) Loss of water-heating capability.		
(a) Start use of disinfectant for mess kit laundries and utensils.	DF	FS
(b) Provide/improvise expedient water-heating device(s).	DL	FS
(c) Intensify personal hygiene inspections/observations.	UL	IS
f. Departure and Return from Field Site.		
(1) Close latrines, soakage pits.		
(2) Clean, repair, reorder, replace and store equipment/supplies as required.	UL	IS